1. Which of the following intervals describes the Range of the function below?

$$f(x) = \log_2(x+8) + 3$$

A. $[a, \infty), a \in [7, 12]$

B. $(-\infty, a), a \in [3, 4]$

C. $(-\infty, a), a \in [-4, -1]$

D. $[a, \infty), a \in [-8, -7]$

E. $(-\infty, \infty)$

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2. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$\log_4(-4x+8) + 6 = 2$$

A. $x \in [-64, -59.3]$

B. $x \in [-4.1, -1]$

C. $x \in [0.9, 2.5]$

D. $x \in [-67.4, -64.9]$

E. There is no Real solution to the equation.

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3. Which of the following intervals describes the Range of the function below?

$$f(x) = \log_2(x+8) - 7$$

A. $(-\infty, a), a \in [6.71, 7.57]$

B. $[a, \infty), a \in [-8.19, -7.94]$

C. $[a, \infty), a \in [7.56, 8.94]$

D. $(-\infty, a), a \in [-7.46, -6.31]$

E. $(-\infty, \infty)$

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4. Solve the equation for x and choose the interval that contains x (if it exists).

$$7 = \sqrt[5]{\frac{20}{e^{4x}}}$$

A. $x \in [-11.6, -7]$

B. $x \in [1.6, 1.8]$

C. $x \in [-0.6, 0.6]$

D. There is no Real solution to the equation.

E. None of the above.

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5. Solve the equation for x and choose the interval that contains x (if it exists).

$$10 = \sqrt[6]{\frac{27}{e^{6x}}}$$

A. $x \in [-3.75, -0.75]$

B. $x \in [-10.55, -7.55]$

C. $x \in [-0.22, 1.78]$

D. There is no Real solution to the equation.

E. None of the above.

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6. Which of the following intervals describes the Range of the function below?

$$f(x) = e^{x-1} + 2$$

A. $(a, \infty), a \in [2, 5]$

B. $(-\infty, a], a \in [-2, 1]$

C. $(-\infty, a), a \in [-2, 1]$

D. $[a, \infty), a \in [2, 5]$

E. $(-\infty, \infty)$

7. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$5^{4x+5} = \left(\frac{1}{49}\right)^{-2x-4}$$

A. $x \in [-2.6, 0.5]$

B. $x \in [-6.5, -4.1]$

C. $x \in [-0.9, 1.6]$

D. $x \in [6.2, 7]$

E. There is no Real solution to the equation.

8. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$\log_4(-3x + 8) + 5 = 3$$

A. $x \in [-7.67, 1.33]$

B. $x \in [-19.67, -10.67]$

C. $x \in [-11, -7]$

D. $x \in [0.65, 5.65]$

E. There is no Real solution to the equation.

9. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$4^{-5x-3} = \left(\frac{1}{125}\right)^{2x-5}$$

A. $x \in [9.7, 10.5]$

B. $x \in [-0.4, 2.1]$

C. $x \in [-1.1, -0.5]$

D. $x \in [-4.9, -2.9]$

E. There is no Real solution to the equation.

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10. Which of the following intervals describes the Domain of the function below?

$$f(x) = -e^{x+6} - 7$$

A. $(-\infty, a), a \in [-8, 3]$

B. $[a, \infty), a \in [2, 10]$

C. $(-\infty, a], a \in [-8, 3]$

D. $(a, \infty), a \in [2, 10]$

E. $(-\infty, \infty)$
